

IN THE CLAIMS:

Please AMEND claims 1 and 7, as shown below.

1. (Currently Amended) A polarizing element, wherein the polarizing element has a two-layer structure in which a grating pattern having a constant period Λ is formed in a substrate, a cross section of the grating pattern having a rectangular shape, and a film having a refractive index higher than that of the substrate is deposited on the grating pattern, $\Lambda \cos \theta_0 < \lambda$ where λ is a wavelength and θ_0 is an angle of incidence to a grating surface, and the grating period, a grating height, and a film thickness are determined such that reflection efficiency of zero-order diffracted light of TE polarization is not lower than a predetermined value that is sufficient for the polarizing element ~~functions to~~ function as a reflecting element while transmission efficiency of zero-order diffracted light of TM polarization is not lower than the predetermined value that is sufficient for the polarizing element ~~functions to~~ function as a transmitting element.

2. (Original) A polarizing element according to claim 1, wherein the predetermined value is 0.8.

3. (Previously Presented) A polarizing element, wherein the polarizing element has a two-layer structure in which a grating pattern having a constant period Λ is formed

in a substrate, a cross section of the grating pattern having a triangular shape, and a film having a refractive index higher than that of the substrate is deposited on the grating pattern, $\Lambda \cos \theta_0 < \lambda$ where λ is a wavelength and θ_0 is an angle of incidence to a grating surface, and the grating period, a grating height, and a film thickness are determined such that reflection efficiency of zero-order diffracted light of one of TE polarization and TM polarization is not lower than a predetermined value that is sufficient for the polarizing element functions as a reflecting element while transmission efficiency of zero-order diffracted light of the other of TE polarization and TM polarization is not lower than the predetermined value that is sufficient for the polarizing element functions as a transmitting element.

4. (Original) A polarizing element according to claim 3, wherein the predetermined value is 0.7.

5. (Previously Presented) A polarizing element, wherein the polarizing element has a two-layer structure in which a grating pattern having a constant period Λ is formed in a substrate, a cross section of the grating pattern having a triangular shape, and a film having a refractive index higher than that of the substrate is deposited on the grating pattern, in the case where a first wavelength λ_1 and a second wavelength λ_2 satisfy a relationship of $\lambda_1 < \lambda_2$, $\Lambda \cos \theta_0 < \lambda_1$ where θ_0 is an angle of incidence to a grating surface, and the grating period, a grating height, and a film thickness are determined such that

reflection efficiency of zero-order diffracted light of TE polarization is not lower than a predetermined value that is sufficient for the polarizing element functions as a reflecting element for the first wavelength λ_1 while transmission efficiency of zero-order diffracted light of TM polarization is not lower than the predetermined value that is sufficient for the polarizing element functions as a transmitting element for the first wavelength λ_1 , and such that transmission efficiency of the zero-order diffracted light of the TE polarization is not lower than the predetermined value that is sufficient for the polarizing element functions as a transmitting element for the second wavelength λ_2 while reflection efficiency of the zero-order diffracted light of TM polarization is not lower than the predetermined value that is sufficient for the polarizing element functions as a reflecting element for the second wavelength λ_2 .

6. (Original) A polarizing element according to claim 5, wherein the predetermined value is 0.7.

7. (Currently Amended) A polarizing element, wherein the polarizing element has a two-layer structure in which a grating pattern having a constant period Λ is formed in a substrate, a cross section of the grating pattern having a triangular shape, and a film having a refractive index higher than that of the substrate is deposited on the grating pattern, in the case where a first wavelength λ_1 and a second wavelength λ_2 satisfy a relationship of $\lambda_1 < \lambda_2$, $\Lambda \cos \theta_0 < \lambda_1$ where θ_0 is an angle of incidence to a grating surface,

and the grating period, a grating height, and a film thickness are determined such that reflection efficiency of zero-order diffracted light of TE polarization is not lower than a predetermined value that is sufficient for the polarizing element ~~functions to function~~ as a reflecting element for the first wavelength λ_1 while transmission efficiency of zero-order diffracted light of TM polarization is not lower than the predetermined value that is sufficient for the polarizing element ~~functions to function~~ as a transmitting element for the first wavelength λ_1 , and such that reflection efficiency of the zero-order diffracted light of TE polarization is not lower than the predetermined value that is sufficient for the polarizing element ~~functions to function~~ as a reflecting element for the second wavelength λ_2 while transmission efficiency of the zero-order diffracted light of TM polarization is not lower than the predetermined value that is sufficient for the polarizing element ~~functions to function~~ as a transmitting element for the second wavelength λ_2 .

8. (Original) A polarizing element according to claim 7, wherein the predetermined value is 0.7.

9. (Currently Amended) A polarizing element according to claim 1, wherein the substrate is made of a synthetic resin.

10. (Original) A polarizing element according to claim 9, wherein the substrate is made of a transparent resin such as acryl and polyolefin.

11. (Previously Presented) A polarizing element according claim 1, wherein the grating pattern of the substrate is formed by transfer from a metal mold.

12. (Previously Presented) A polarizing element according to claim 1, wherein the film is a deposited film.

13. (Original) A polarizing element according to claim 12, wherein the deposited film is made of a material such as TiO_2 having a refractive index higher than a refractive index of the substrate.

14. (Previously Presented) A polarizing element according to claim 12, wherein a thickness of the deposited film is smaller than 0.3 micrometers.

15. (Previously Presented) A polarizing element according to claim 1, wherein the grating height is smaller than the grating period.

16. (Previously Presented) A polarizing element according to claim 5, wherein the first wavelength is the wavelength for a digital versatile disc and the second wavelength is the wavelength for a compact disc.

17. (Previously Presented) An optical system including a first-wavelength light source, a second-wavelength light source, and a polarizing element according to claim 1, wherein the polarizing element is configured to reflect light from the light source of any wavelength in order to cause the light to reach to a disc and to transmit the return light reflected by the disc.

18. (Previously Presented) An optical system including a first-wavelength light source, a second-wavelength light source, and a polarizing element according to claim 5, wherein the polarizing element is configured to reflect light from the first-wavelength light source and the second-wavelength light source in order to cause the light to reach to a disc and to transmit the return lights reflected by the disc.

19. (Previously Presented) A polarizing element according to claim 3, wherein the substrate is made of a synthetic resin.

20. (Previously Presented) A polarizing element according to claim 5, wherein the substrate is made of a synthetic resin.

21. (Previously Presented) A polarizing element according to claim 7, wherein the substrate is made of a synthetic resin.

22. (Previously Presented) A polarizing element according to claim 3, wherein the grating pattern of the substrate is formed by transfer from a metal mold.

23. (Previously Presented) A polarizing element according to claim 5, wherein the grating pattern of the substrate is formed by transfer from a metal mold.

24. (Previously Presented) A polarizing element according to claim 7, wherein the grating pattern of the substrate is formed by transfer from a metal mold.

25. (Previously Presented) A polarizing element according to claim 3, wherein the film is a deposited film.

26. (Previously Presented) A polarizing element according to claim 5, wherein the film is a deposited film.

27. (Previously Presented) A polarizing element according to claim 7, wherein the film is a deposited film.

28. (Previously Presented) A polarizing element according to claim 3, wherein the grating height is smaller than the grating period.

29. (Previously Presented) A polarizing element according to claim 5, wherein the grating height is smaller than the grating period.

30. (Previously Presented) A polarizing element according to claim 7, wherein the grating height is smaller than the grating period.

31. (Previously Presented) A polarizing element according to claim 7, wherein the first wavelength is the wavelength for a digital versatile disc and the second wavelength is the wavelength for a compact disc.

32. (Previously Presented) An optical system including a first-wavelength light source, a second-wavelength light source, and a polarizing element according to claim 3, wherein the polarizing element is configured to reflect light from the light source of any wavelength in order to cause the light to reach to a disc and to transmit the return light reflected by the disc.

33. (Previously Presented) An optical system including a first-wavelength light source, a second-wavelength light source, and a polarizing element according to claim 5, wherein the polarizing element is configured to reflect light from the light source of any wavelength in order to cause the light to reach to a disc and to transmit the return light reflected by the disc.

34. (Previously Presented) An optical system including a first-wavelength light source, a second-wavelength light source, and a polarizing element according to claim 7, wherein the polarizing element is configured to reflect light from the light source of any wavelength in order to cause the light to reach to a disc and to transmit the return light reflected by the disc.

35. (Previously Presented) An optical system including a first-wavelength light source, a second-wavelength light source, and a polarizing element according to claim 7, wherein the polarizing element is configured to reflect light from the first-wavelength light source and the second-wavelength light source in order to cause the light to reach to a disc and to transmit the return lights reflected by the disc.